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This document briefly explains the relationship between the School of Information Science and the Laboratory for Information and Computer Science at the Georgia Institute of Technology. The explicit purposes of the information science laboratory are spelled out as well as the specific objectives for the 1969/70, 1970/71, and 1971/72 school years. The administrative organization of the laboratory is reported and the list of equipment available or on order in the laboratory as of September, 1968, is indicated. (RP)

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THE LABORATORY FOR INFORMATION AND COMPUTER SCIENCE

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School of Information Science

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The graduate School of Information Science of the Georgia Institute of Technology offers comprehensive programs of education, research and service in the information, computer and systems sciences. As part of its research activities the School operates, under a grant from the National Science Foundation, an interdisciplinary science information research center. Correspondence concerning the programs and activities of the School may be addressed to Director, School of Information Science, Georgia Institute of Technology, Atlanta, Georgia 30332.

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THE LABORATORY FOR INFORMATION AND COMPUTER SCIENCE

Alton P. Jensen and Vladimir Slamecka

(Internal Research Memorandum)

School of Information Science
GEORGIA INSTITUTE OF TECHNOLOGY
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ABSTRACT

The purpose and objectives of the Laboratory for Information and Computer Science of the School of Information Science, Georgia Institute of Technology, are described. A three-year program of goals (1969-1971) is given. The equipment configuration of the laboratory centers around a versatile PDP-8/I computer system, with the background support of the facilities of the Rich Electronic Computer Center of the Institute.

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INTRODUCTION

The School of Information Science of the Georgia Institute of Technology is committed to the full development of the discipline of information and computer science, and to its applications in science, industry and society. This development and the evaluation of its impact require sound programs of research employing the theories, techniques and talent of many fields in yet untested environments, and for yet unclear purposes. It is toward the development of these environments and the identification of these purposes that the School of Information Science has committed itself to a broad, interdisciplinary program of research. The Laboratory of the School is a salient component of this program.

The School's Laboratory for Information and Computer Science exists independently of the Computer Center of the Institute. Nevertheless, the School subscribes fully to the idea that effective use must be made by it of these central computing resources at the Rich Electronic Computer Center. It is recognized that this center can effectively and productively extend a substantial computer support through its standard facilities which comprise a set of services, languages, rules of use, and schedules, as well as such conditions of operation as are necessary to provide the entire campus with a maximum amount of computer power for the monies expended.

The very nature of such a central operation inhibits and discourages experimentation, since the latter tends to induce instability in the complex array of interrelated elements involved in a multiprogramming, multiprocessor system which serves the requirements of the entire Institute. Thus in addition to the absolute necessity for large amounts of standard computer power, the research programs of the School of Information Science require a dedicated computer/communications laboratory facility unrestrained by Institute-wide service commitments.

In recognition of the requirement for this independence of operation, a Laboratory has been established at the School which exploits the power of the large central computers while also providing, for projects which require it, an independent environment and operating capability.

The rationale of the Laboratory development and a consideration of its facilities were described in detail in a previously issued internal memorandum.[1]

Purpose of the Laboratory

The explicit purposes of the information science laboratory are:

1. To support and accelerate innovation and creativity in the discovery and design of information theories, processes and systems;
2. To facilitate the development and evaluation of models of information processes and their devices (such as languages), and of information systems;
3. To stimulate and sustain faculty development and student enterprise.

Near-Term Objectives of the Laboratory

Within these purposes lies the following schedule of specific objectives:

1969/1970:

1. To establish a communications-oriented facility capable of supporting information processing experiments involving analog, digital, audio, visual and graphic media;
2. To facilitate faculty involvement in specific programs of professional development using computers;
3. To stimulate, direct, and evaluate the requirements of student involvement in the development of interactive programming systems;
4. To initiate a program of facility support to a research effort investigating the design and implementation of a general information system for learning.

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[1] J. H. Poore, Jr., et al. "Configuration of Information Science Research Laboratory." Atlanta, Ga., Georgia Institute of Technology, December 1967. (Internal memorandum, Project B-1804, School of Information Science.)

1970/1971:

1. To extend the boundaries of the laboratory to permit the use of its facilities for information processing aspects of experimental programs in other disciplines and professions (e.g., physics, medicine, psychology, education, chemistry, etc.);
2. To provide systems, procedures and instrumentation support in experimental areas involving data acquisition and control;
3. To operate a modularly designed facility used experimentally for off-campus, interactive audiographic learning;
4. To examine the consequences of a multilingual, interactive programming facility;
5. To evaluate existing facilities and specify needed expansions.

1971/1972:

1. To acquire a significant increase in computer power for dedication to live experiments;
2. To extend the experimental and pilot use of the interactive, audiographic learning facility to programs and faculties of other schools and for other institutions.

ORGANIZATION OF LABORATORY

Administration

Within the School of Information Science, the laboratory is administered by a manager who reports, as a faculty member, to the director of the School. It is the responsibility of the manager to develop and meet approved objectives, and to maintain the facilities in a state of readiness and availability within the policies approved for the laboratory operation and use.

User Policies

The facilities of the laboratory are available, on a scheduled basis, for both research and academic activities in information and computer science of the Georgia Institute of Technology. If needed, support personnel must be budgeted and scheduled by each laboratory user or project.

Research projects of the School of Information Science and other departments are expected to be self-supporting with respect to the use of the laboratory, with the exception of projects funded from NSF Grant GN-655 and/or matching State funds. Where long term commitment of the laboratory computing equipment is involved, the project is expected to provide also the necessary interface device and/or software, so that the computer may be used unencumbered for other purposes when not in use by that project.

Programs of instruction which require laboratory support are expected to schedule their requirements in advance, based on estimated enrollment. The cost of using the facilities for such purposes shall be borne by the department offering the course.

Schedule of Operations

The laboratory is available for scheduled use 24 hours per day, seven days per week.

PRESENT EQUIPMENT CONFIGURATION

Table 1 shows the list of equipment available or on order in the laboratory, as of September 1968.

Table 1. Laboratory Equipment List

No.	Units	Item Description
1	1	IBM 029 Keypunch
2	1	ASR-33 Teletypewriter on Dataphone Service
3	1	ASR-33 Teletypewriter and Anderson-Jacobs Acoustic Coupler operating on Dataphone Service
4	1	201-A Dataphone Dataset
5	1	403-D3 Touchtone Dataset with ASCII code converter. (Associated Touchtone Pad on loan from Southern Bell)
6	1	Kodak 35mm Carousel Projector
7	1	Execugraph Sync-Sound Projector/Audio System
8	1	Sony Electronic Control 4-track Stereo Audio Tape Recorder/Player
9	1	Uher monaural, multispeed, Audio Tape Recorder/Player
10	1	Victor Electrowriter Transmitter
11	1	Victor Electrowriter Receiver
12	1	Digital Equipment Company PDP-8/I Computer with EAE, 8K Core Memory, 2 DEC Tapes, 4 A/D Converter Channel, 3 D/A Converter Channel, Hi-Speed Paper Tape Reader and Punch, 2 PT08's (300 band and 1,200 band), one DP01-A Data Communications Channel capable of synchronous operation at 150, 300, 600, 1200, 2000, 2400, 40.8K, and 50K band rates. On order and scheduled for delivery are 500K words of Disk and one light pen operated storage scope.
13	1	Motorola MDR-1000 Document Reader which operates at 1200 bps.
14	1	ASR-37 on lease (expected delivery April 1, 1969).
15	1	INKTRONIC Printer on order (expected delivery June 1, 1969).

These facilities are supported with the following central computer capabilities of the Rich Electronic Computer Center:

1. A dual processor B-5500 with 8 Modules of Memory, 30 million characters of Disk, 10 Magnetic Tape Units, two Hi-Speed Card Readers, two Hi-Speed Line Printers, one Card Punch, 4 I/0 Channels, and one Data Communications Controller with 8 Teletypewriter Datasets.

2. A single Processor U-1108 with 132 K Core, two FASTRAND Units, three FH-880 Drums, one Hi-Speed Printer, two 1004 Reader/Punch/Print Units, 4 Magnetic Tape Units and one CTMC Communication Controller with 4 Teletype Stations and 2 1004 Stations.

3. One 760-series Calcomp Incremental Plotter.

4. A large high precision off-line Audio Tape to Digital Tape Recorder

5. Full Data Preparation Services